

CENTRAL LINE-ASSOCIATED BLOODSTREAM INFECTIONS OVERVIEW

BACKGROUND

Central line associated bloodstream infections (CLABSI) are associated with specific intravascular catheters or central lines that must be in place at the time of, or within 48 hours before the onset of the infection. A central line is an intravascular catheter (tube in a vein or artery) that terminates at or close to the heart or in one of the great vessels (e.g., aorta, superior vena cava). A peripheral line is a similar tube in a vein or artery that does not enter a great vessel, is a smaller diameter tube, and is typically used for shorter periods of intravenous access. Both central lines and peripheral lines can be used to infuse fluids or medications, withdraw blood or monitor fluid volume in patients. However, central lines are typically placed when intravenous access is needed for longer time periods, larger volumes of fluids, or access for dialysis is needed. An umbilical catheter (i.e., a tube placed in the umbilical cord) is a central vascular catheter inserted through the umbilical artery or vein in a neonate (infant \leq 30 days old). Central lines can be either permanent or temporary. Permanent lines are those that are tunneled under the skin before entering a great vessel. These can include certain dialysis lines and implanted catheters such as a port. Temporary lines are those that are not tunneled.

All patients with central lines are at risk for CLABSI. However, certain groups are at higher risk for infection: elderly, neonates, dialysis patients, patients with weak immune systems (e.g., cancer patients, transplant patients), diabetics and patients with burn injuries¹⁰⁻¹².

Colorado requires that all adult critical care units, neonatal critical care units Level II/III and III, long-term acute care hospitals (LTAC), and inpatient rehabilitation hospitals and wards report CLABSI data into NHSN.

Every CLABSI data table below lists all Colorado hospitals and hospital unit(s) reporting central line use, their cities, number of central line days per year, number of infections, SIRs, and comparisons to national infection rates. The number of central line days is the total number of days a central line was in place for patients in the unit during the reporting period (for example, if three patients each had a central line for 10 days, the number of central line days is 30). The three categories summarizing how a Colorado facility compares to the national infection rate for that unit are:

1. Statistically lower infection rate than the national rate (**better**);
2. Statistically similar infection rate as the national rate (**same**); or
3. Statistically higher infection rate than the national rate (**worse**).

REHABILITATION HOSPITALS AND INPATIENT REHABILITATION WARDS

Rehabilitation hospitals and inpatient rehabilitation wards care for patients who have lost function due to acute or chronic pain, musculoskeletal problems, stroke, brain or spinal cord dysfunction, catastrophic events resulting in complete or partial paralysis or need rehabilitation for other reasons. The goal for these areas is to evaluate, treat and restore optimal functioning of the patients physically and mentally.

Rehabilitation hospitals and wards report infection data for patients with either permanent or temporary central lines. Permanent lines are those that are tunneled under the skin before entering a great vessel. These can include certain dialysis lines and implanted catheters such as a port. Temporary lines are those that are not tunneled and their infection rates are higher than permanent lines.

RESULTS

Table 20 shows facility specific data for CLABSI in rehab hospitals and wards. The table contains data from January 1, 2012 through July 31, 2015.

Five rehabilitation hospitals and 12 rehab wards reported 9,468 central line days this past year. All but two facilities reported zero infections and all facilities' rates were similar to the national average.

All but two inpatient rehab facilities reported zero infections and all had CLABI rates similar to the national average.

Table 20: Number of Central Line Associated Bloodstream Infections in Inpatient Rehabilitation Hospitals and Wards – Colorado, January 2012 – July 2015

Central Line Associated Blood Stream Infections (CLABSI) in Inpatient Rehabilitation Hospitals and Wards: January 1, 2012 – July 31, 2015													
Health Facility and City		January 2012 – July 2013				August 2013 – July 2014				August 2014 – July 2015			
		No. of CL Days	No. of Infections	SIR	National Comparison	No. of CL Days	No. of Infections	SIR	National Comparison	No. of CL Days	No. of Infections	SIR	National Comparison
Boulder Community Hospital	Boulder	656	0	0	Same	506	0	0	Same	335	0	0	Same
Centura Penrose St Francis Health	CO Springs	697	0	0	Same	816	0	0	Same	630	0	0	Same
Centura Porter Adventist Hospital	Denver	679	0	0	Same	728	0	0	Same	673	0	0	Same
Centura St Anthony Hospital	Lakewood	633	2	16	Worse	475	0	0	Same	545	1	9.2	Same
Centura St Mary Corwin MC	Pueblo	202	0	0	Same	101	0	0	Same	159	0	0	Same
Denver Health MC	Denver	294	0	0	Same	270	1	19	Same	228	0	0	Same
HealthSouth Rehabilitation Hospital of Colorado Springs	CO Springs	662	0	0	Same	701	0	0	Same	724	0	0	Same
HealthSouth Rehabilitation Hospital of Denver	Denver	59	0	0	Same	445	0	0	Same	457	0	0	Same
Memorial Hospital Central	CO Springs	726	0	0	Same	1,027	0	0	Same	761	0	0	Same
Montrose Memorial Hospital	Montrose	136	0	0	Same	148	0	0	Same	167	0	0	Same
Northern Colorado Rehabilitation Hospital	Johnstown	911	0	0	Same	972	0	0	Same	957	0	0	Same
Parkview Medical Center	Pueblo	235	0	0	Same	350	0	0	Same	188	0	0	Same
Spalding Rehabilitation Hospital	Aurora	1,370	0	0	Same	932	0	0	Same	1,082	0	0	Same
Spalding at PSL	Denver	871	0	0	Same	1,146	0	0	Same	932	0	0	Same
St Mary's Hospital	Grand Junction	312	0	0	Same	46	***	**	***	104	0	0	Same
Swedish MC	Englewood	502	0	0	Same	515	0	0	Same	387	0	0	Same
University of Colorado Hospital	Aurora	1,169	0	0	Same	1,349	1	3.7	Same	1,139	1	.4	Same

Note: CL=Central Line; SIR=standardized infection ratio, the ratio of observed to expected infections adjusted for procedure risk factors.

Infections for facilities with fewer than 50 central line days per year are suppressed to protect confidential health information. These facilities fulfilled reporting requirements.

*** Indicates value not shown due to suppression of infection data, no national or historical rate available, or an expected infection count of less than 1.

National comparison based on data collected and reported by NHSN-participating hospitals from January-December, 2013.

Source: National Health Care Safety Network (NHSN) Database.